

REMARKS

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Information Disclosure Statement Filed May 5, 2008

Applicants direct the Examiner's attention to the Information Disclosure Statement (IDS) filed May 5, 2008. It appears that this IDS crossed in the mail with the outstanding Office Action (mailed May 7, 2008). The Examiner is respectfully requested to review the IDS and forward an Examiner-initialed copy of the attached PTO-1449 Form with the next correspondence.

Claim Amendments

Claims 1 and 11 have been amended to recite the transitional phrase "comprising". Dependent claims 3-10 have been amended to replace the article "A" with "The". New claims 17-19 have been added, based on pending claims 1 and 9.

Accordingly, no new matter has been added to the application by these amendments.

Patentability Arguments

The patentability of the present invention over the disclosures of the references relied upon by the Examiner in rejecting the claims will be apparent upon consideration of the following remarks.

Rejection Under 35 U.S.C. § 103(a)

The rejection of claims 1 and 3-11 under 35 U.S.C. § 103(a) as being unpatentable over Higuchi et al., in view of Noguchi et al., Yoneda and Miller is respectfully traversed.

The Position of the Examiner

The Examiner takes the position that Higuchi et al. and Noguchi et al. disclose the known process of surface treating an inner surface of a vacuum member by first mechanically polishing the vacuum member with a liquid medium containing hydrogen atoms, then subjecting the

vacuum member to a chemical or electrochemical polishing process. The Examiner admits that neither reference teaches a liquid medium absent of any hydrogen atoms, wherein said liquid medium is a hydrocarbon in a molecule of which the hydrogen atom(s) are all substituted with fluorine atom(s).

The Examiner states that Yoneda teaches providing a non-aqueous solution intermingled with a polishing medium, wherein said non-aqueous solution is formed from various types of fluorocarbons. The Examiner asserts that since perfluorocarbons are examples of fluorocarbons which have had their hydrogen atoms replaced by fluorine atoms, the Examiner asserts that the reference meets this limitation.

The Examiner further states that Miller teaches that perfluorocarbons can be formed from saturated or unsaturated hydrocarbons at various temperatures and pressures. The Examiner takes the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the liquid medium used in the known process, of Higuchi et al. and Noguchi et al., with a liquid medium formed as a saturated hydrocarbon under ordinary pressure and ordinary temperatures where the hydrogen atoms are replaced with fluorine atoms, as taught by Yoneda and Miller.

Applicants' Arguments

Applicants attach hereto a table (Appendix A), which compares Applicants' invention with the disclosures of the cited references. Applicants assert that this table clearly demonstrates the differences between Applicants' invention and the disclosures of the cited references. The relevant disclosures of Higuchi et al., Noguchi et al. and Yoneda (Japanese language) have been translated into English by Applicants, in order to prepare the attached comparison table.

(1) The liquid medium used in Applicants' claimed process is a saturated hydrocarbon in a molecule of which a hydrogen atom or hydrogen atoms are all substituted with a fluorine atom or fluorine atoms.

Neither Higuchi et al. nor Noguchi et al. describe the liquid medium used in the claimed process, as acknowledged by the Examiner on page 3, lines 6-9 in item 5 of the outstanding

Office Action.

Yoneda describes in lines 1-6 of paragraph [0007] that, "This invention is directed to a manufacturing method of a ceramic electronic part, comprising the step of polishing a ceramic chip . . . in a liquid. This invention is characterized by that a non-aqueous liquid is used as a liquid . . .". Further, Yoneda describes in lines 1-2 of paragraph [0014] that "barrel-polishing is typically applied in a polishing process" and in lines 6-9 of paragraph [0012] that "As a non-aqueous liquid, fluorinated inert liquids (solvents) such as hydrofluoroether, hydrofluorocarbon and chlorofluorocarbon can be most practically used."

However, Yoneda does not describe the liquid medium recited in Applicants' claims, i.e. a saturated hydrocarbon in a molecule of which a hydrogen atom or hydrogen atoms are all substituted with a fluorine atom or fluorine atoms.

Thus, it is clear that neither Higuchi et al., Noguchi et al., Yoneda nor a combination thereof, teach or suggest the liquid medium recited in Applicants' claims. (This is further demonstrated in the attached table, Appendix A.)

(2) The problem to be solved by Applicants' invention is to prevent occlusion of hydrogen as a solid solution into an inner surface of the vacuum member during mechanical polishing, chemical polishing or electrochemical polishing. On the contrary, the problem to be solved by Yoneda is to prevent a ceramic electronic part from deteriorating in characteristics due to partial elution of ceramic into water at the time when a burned ceramic chip which contains alkaline earth metals such as Ba, Sr, Ca and the like is polished in water. (Please see the Patent Abstract of Japan of Yoneda, a copy of which is attached hereto as Appendix B). Thus, it is clear that the problem to be solved by Applicants' invention is quite different from that of Yoneda.

(3) Miller describes in column 1, lines 26-32 that, "The term 'fluorocarbon' designates a carbon compound in which all of the substituents are fluorine . . . Such a compound may be saturated or unsaturated." Miller further describes on column 1, lines 66-67 that "Another object of this invention is to produce substantially hydrogen-free fluorocarbons and their halogen derivatives." Accordingly, Miller merely discloses a saturated hydrocarbon in a

molecule of which a hydrogen atom or hydrogen atoms are all substituted with a fluorine atom or fluorine atoms, and a producing method thereof. Thus, the technical field of Miller is quite different from that of Applicants' claimed invention. Miller is merely a reference which shows the general knowledge in the art, and the reference is patentably distinct from Applicants' claimed invention. Therefore, Miller does not remedy the deficiencies of the other references, as discussed above. [It is worth noting that the Miller reference has a date of 1960. Given the age of the reference, if the combination asserted by the Examiner was obvious, it is reasonable to assume there would be a reference more directly on point.] Thus, it cannot be found that Miller, as a general knowledge reference, destroys the unobviousness of Applicants' claimed invention.

(4) Applicants' claimed invention has an effect of preventing the occlusion of hydrogen as a solid solution into a vacuum member during mechanical polishing, chemical polishing or electrochemical polishing, by using a liquid medium including a saturated hydrocarbon in a molecule of which a hydrogen atom or hydrogen atoms are all substituted with a fluorine atom or fluorine atoms when the vacuum member is formed and polished. This effect of Applicants' claimed invention is superior, as clearly shown in Test Examples 1 and 2 and Example 1 of Applicants' specification, as well as the Rule 1.132 Declaration which was previously submitted to the USPTO on September 24, 2007. The Examiner is respectfully requested to review the discussion set forth on pages 10-13 of the Amendment After Final Rejection, filed September 24, 2007.

As the Examiner is certainly aware, a showing of unexpected and superior results is sufficient evidence of non-obviousness. (Please see MPEP 716.02(a)). Thus, it is asserted that Applicants' showing of superior results overcomes any asserted case of obviousness.

The superior effect of Applicants' claimed invention is neither disclosed nor suggested in Higuchi et al., Noguchi et al., Yoneda, Miller, nor the combination thereof. Applicants direct the Examiner's attention to page 10, lines 6-12 of the response filed September 24, 2007, which details the effects of Higuchi et al. and Noguchi et al. Additionally, the effect of Yoneda is to prevent a ceramic chip from being adversely influenced by water, i.e. partial elution of ceramic into water, at the time when a burned ceramic chip which contains alkaline earth metals such as

Ba, Sr, Ca and the like is polished by using a non-aqueous liquid. (Please see the enclosed abstract of Yoneda.) The effect of Miller is to conveniently and effectively synthesize a number of useful fluoro perhalocarbons containing a four carbon atom membered ring. (Please see column 8, lines 29-31 of Miller.)

Thus, none of the cited references teach or suggest the superior results achieved by Applicants' claimed invention. According to MPEP 716.02(a), a showing of superior results is sufficient to rebut a case of obviousness.

For these reasons, the invention of claims 1 and 3-11 is clearly patentable over Higuchi et al., in view of Noguchi et al., Yoneda and Miller, and the Examiner is respectfully requested to withdraw the rejection.

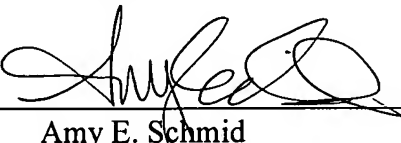
Conclusion

Therefore, in view of the foregoing amendments and remarks, it is submitted that the ground of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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Comparison Table of the present invention with the cited references

The present invention Priority date: Dec. 6, 2002	D1: Higuchi (JP 2000-71164) Pub. date: Mar. 7, 2000	D2: Noguchi (JP 11-350200) Pub. date: Dec. 21, 1999	D3: Yoneda (JP 11-329896) Pub. date: Nov. 30, 1999	D4: Miller (US 2,951,096) Pub. date: Aug. 30, 1960
A surface-treating process,	a method for polishing physically the metal hollow object like the acceleration cavity having openings at the both ends (para.[0006], lines 2-3)	To provide a method for polishing the inside surface of a metallic hollow body (Abstract, line 2-3)	the ceramic chip surface such as end face is shaved off by this polishing (para.[0011], lines 6-8)	No mention
wherein an inner surface of a vacuum member is mechanically polished	a method for polishing physically the metal hollow object like the acceleration cavity having openings at the both ends (para.[0006], lines 2-3)	No mention	In a polishing process, barrel-polishing is typically applied (para.[0014], lines 1-2)	No mention
		The process for chemical polishing or electrolytic polishing the inside surface of the metal hollow object --- (para.[0006], lines 4-5)	This invention is directed to a manufacturing method of a ceramic electronic part, comprising the step of polishing a ceramic chip after calcination in a liquid (para.[0007], lines 1-4)	
in the presence of a liquid medium, or a liquid medium and an oxidizing material,	the existence of a polish assistant (water, surfactant) etc. influenced the amount of polish removal (para.[0006], lines 8-9)	the polish liquid is characterized by --- at least one of fluoric acid, sulfuric acid, nitric acid, phosphoric acid, chromic anhydride, sodium hydroxide, and sodium phosphate (para.[0008], lines 4-7)	This invention is directed to a manufacturing method of a ceramic electronic part, comprising the step of polishing a ceramic chip --- in a liquid (para.[0007], lines 1-4)	No mention
wherein the liquid medium includes no hydrogen atom, and	No mention	No mention	No mention	Another object of this invention is to produce substantially hydrogen-free fluorocarbons --- (col.1, lines 66-67)
wherein the liquid medium including no hydrogen atom is a liquid at an ordinary temperature and an ordinary pressure and	No mention	No mention	No mention	--- useful compounds are made by heating at a temperature in the range of about 90°C. to about 700°C., a compound --- (col.3, lines 47-50); The reaction is suitably carried out at atmospheric pressure (col.4, lines 1-2)
a saturated hydrocarbon in a molecule of which a hydrogen atom or hydrogen atoms are all substituted with a fluorine atom or fluorine atoms.	No mention	No mention	No mention	The term "fluorocarbon" designates a carbon compound in which all of the substituents are fluorine ---. Such a compound may be saturated or unsaturated (col.1, lines 26-32); a perhalogenated compound is a compound in which all the hydrogen atoms are replaced by halogen (col.1, lines 38-40).
			In this invention, fluorinated inert liquids can be preferably used as a non-aqueous liquid ([0008], lines 3-4); As a non-aqueous liquid, fluorinated inert liquids (solvent) such as hydrofluoroether, hydrofluorocarbon and chlorofluorocarbon can be most practically used (para.[0012], lines 6-9)	